

REMARKS/ARGUMENTS

Claims 21-23 are active and drawn to the elected subject matter.

Claim 21 is amended to incorporate Claim 24 and to further define that the titanium dioxide is deposited directly on the surface of the silicon dioxide.

No new matter is added.

The Examiner has maintained the previous rejections combining Finely (US2002/0045073) and Hondo. A separate rejection against Claim 23 citing both Finely and Hondo with Krisko is maintained and the Examiner has raised a new rejection for Claim 24 adding the reference of Thelen to Finely and Hondo to allege the inclusion of a silicon dioxide layer would have been obvious.

The rejections of Claims 21 and 22 under 35 USC 103(a) citing Finley and Hondo and of Claim 23 under 35 USC 103(a) citing Finley, Hondo, and Krisko are no longer applicable as Claim 21 has been amended to include the limitations of Claim 24, which was not rejected in these two grounds.

The rejection of Claim 24 under 35 USC 103(a) citing Finely, Hondo and Thelen as it may apply to amended Claim 21 cannot be sustained.

Finley teaches providing a substrate such as glass, (see paragraphs 23 and 24) coated with a photoactive material such as titanium dioxide (see paragraphs 27 and 28), and they include a functional coating (see paragraph 31). Finley also suggests heating the substrate after the coating has been deposited by CVD to anneal or temper the substrate (see paragraph 39).

Table IV of Finley assesses anatase and rutile forms of TiO₂. ZrO₂ is in the cubic form. The level of anatase form is higher at the lower temperature of 524° compared to higher temperature 636°. There is no pattern from Finley's data nor is there any statement in Finley that contradicts Applicants prior position of unexpected results, particularly in view of

Jamison as it specifically relates to titanium dioxide. While it recognized that Honjo is relied upon to teach the higher temperature (higher than Finley), in light of Finley's teachings the combined teachings of these references lead one away, rather than towards, the claimed invention which utilizes temperatures above 630°C as the skilled person would expect a lower anatase formation based on what Finley teaches.

The Examiner maintains that one would have applied Hondo's increased temperature to allow for bending (see page 3 of the Official Action) and at the increased temperature Finely's sample would have titanium dioxide in partially anatase form (see page 5 "Response to Arguments" section). The Examiner relies on Thelen to teach the inclusion of a silicon dioxide layer as previously presented in Claim 24 into the construction of Finely (see Action at page 4, citing FIG. 4, col. 3, lines 56-64 and col. 6, lines 25-30). However, Finley does not teach that the titanium dioxide is directly deposited on the silicon dioxide as required in Claim 21 presented in this paper.

Finely teaches the need for cubic or orthorhombic phases of zirconium oxide to facilitate the anatase form of titanium dioxide deposited on the zirconium oxide film (see paragraph 10 of Finely). The Examiner's argument (see page 6 of the Official Action) is that titanium dioxide is deposited on the silicone dioxide albeit with an "intermediate layer" that presumably is the zirconium oxide layer that Finely requires. However, Claim 21 requires that the titanium dioxide is deposited directly on the silicon dioxide layer and therefore, the combined teachings of the references do not teach and rather teach away from all of the claimed limitations.

As explained in previous responses, the inventors discovery of achieving crystallization by a single heat treatment while maintaining good photocatalytic activity was not reasonably expected (referencing the Jamieson et al publication again). Indeed, the invention makes it possible to obtain in a simple manner a glazing having 2 properties : self-

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cleaning for the outside part of the building and low-emissivity or solar control for the inside part of the building. Deposition is made by sputtering on both sides, and is followed by a heat treatment at high temperatures (above 630°C).

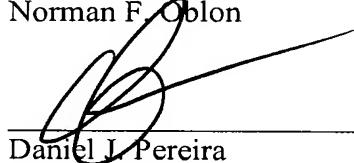
Further, as discussed on page 2 of the application, the inventors have succeeded in obtaining high photocatalytic activity and high optical quality by crystallizing the titanium dioxide at the temperatures of conventional glass heat treatments, thereby achieving this crystallization by the single toughening or other heat treatment and avoiding an additional subsequent heating operation at a more moderate temperature.

Withdrawal of the rejection is requested.

A Notice of Allowance is requested.

Respectfully submitted,

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